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Current Status of the 1974 Soviet Grain Crop

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CURRENT STATUS OF THE 1974 SOVIET GRAIN CROP

SUMMARY

1. Delays in the spring sowing campaign and above-average losses of winter grains suggest that Soviet grain output this year - assuming average weather from now on - will amount to about 190 million metric tons, well below last year's record 222.5 million tons. As in the past, between 10% and 20% of the gross weight will be excess moisture and extraneous matter.¹ The projected output will fall short of current domestic needs and usual export commitments but can be covered by reserves built up following the 1973 record harvest. Therefore, we do not anticipate large-scale Soviet grain imports in fiscal year 1975. The Soviets may still import grain if the price is right. Soviet grain yields are extremely weather sensitive, and the USSR will not have a firm enough estimate of output to calculate its import needs before July or August.

DISCUSSION

Introduction

2. Because of its importance for US grain exports and for its potential impact on world grain prices, the development of the 1974 Soviet grain crop is of major concern. This publication, which is based on data available in early June, discusses the status of the Soviet grain crop, the outlook for production, and the prospects for Soviet grain imports.

For the major grain growing regions in the USSR, see the map.

Status of the Grain Crop

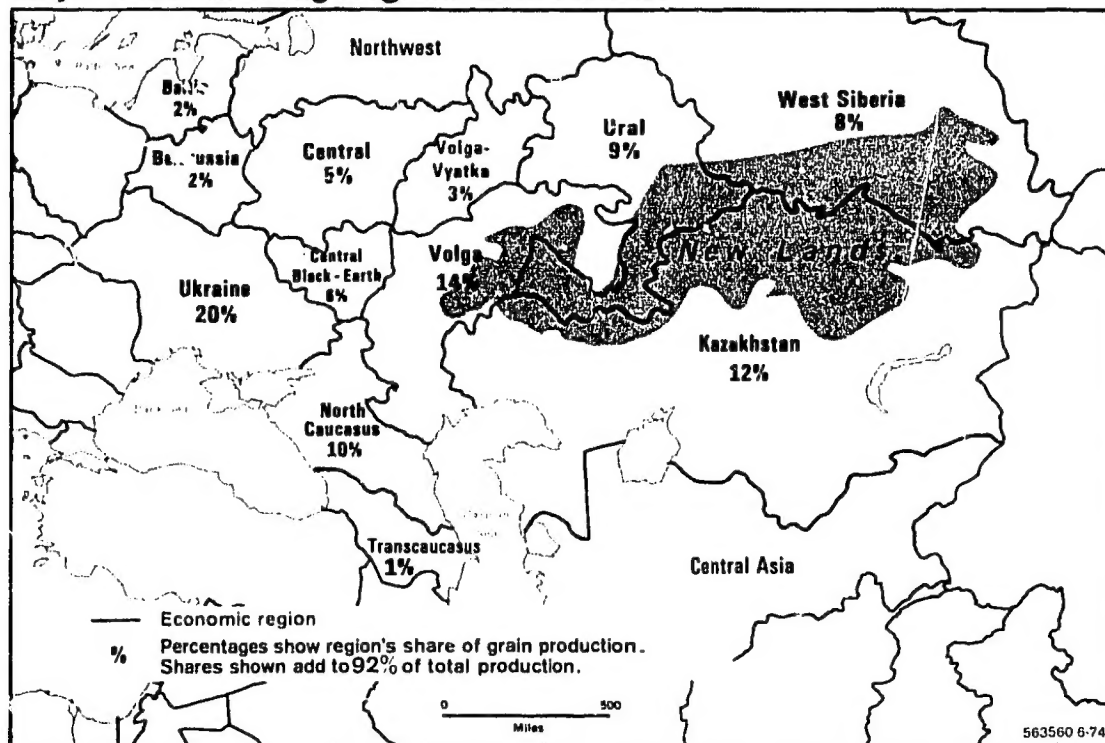
Winter Grains

3. To compensate for a short growing season and relatively low summer rainfall throughout much of the country, the USSR normally relies on winter grains for about one-third of its total grain supply. Practically all of the winter grains consist of wheat and rye, which provide almost 60% of the country's bread grain. In the fall of 1973 the Soviet Union planted 37 million hectares of winter grains, the largest area since 1969. Heavy autumn rainfalls, however, delayed the planting,

1. The actual availability of grain - net of excess moisture and extraneous matter - will depend on growing and harvesting conditions during the balance of the crop season.

Note: Comments and queries regarding this publication are welcomed. They may be directed to [redacted] of the Office of Economic Research, [redacted]

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Major Grain Growing Regions in the USSR

and a relatively large share of sown acreage entered dormancy in fair to poor condition. Then in mid-January, temperatures fell sharply throughout the country, and snow cover was sparse in the south. Higher-than-average temperatures in some areas during most of the winter resulted in alternating freezing and thawing, which uprooted plants and formed suffocating ice crusts. In Moldavia and the western part of the Ukraine, rainfall and soil moisture were at abnormally low levels during the winter and early spring, resulting in poor plant development when growth resumed. Finally, freezing temperatures were recorded in mid-May over much of European Russia. In Odessa, on the Black Sea, it was the latest frost in 106 years. Some of the winter grains were hit hard. For example, officials in Belorussia have been warned of "considerable damage — caused by [May] frost... to winter wheat and rye" and were ordered to carry out a sample survey at the end of May to determine the extent of acreage requiring sowing to lower yielding "catch crops" (millet and buckwheat).

4. As a result of these unusually poor conditions, about 10 million hectares of grain — an area considerably larger than the average 4 million hectares of recent years — probably never germinated, were lost to winterkill, or were badly damaged by the May frosts. Earlier, in mid-April, Deputy Minister of Agriculture Kuznetsov had already estimated that between 5 million and 10 million hectares would have to be reseeded.

5. Farms have been ordered to use less of the winter grain area as green forage to feed livestock in the spring. Instead of the usual 4 million hectares, perhaps

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as little as 1 million hectares will be used for forage this year. Nevertheless, the fall-sown area to be harvested as grain will probably be only about 26 million hectares, compared with 27 million hectares last year and an average of 31 million hectares in 1966-70.

Spring Grains

6. The 1974 spring sowing campaign got off to an early start, primarily because of the lack of snow cover in the south and low soil moisture in the west. But in mid-April – when the sowing campaign was scheduled to move into high gear – cold, snow, and rain hit the European USSR, hindering sowing operations. *Pravda* at the end of May summarized the ensuing strain:

This spring, with its unsettled weather and sharp temperature fluctuations, has become a serious test for the farmers and has created many difficulties for them by reducing the already tight deadline to a bare minimum. It has required machine operators to display a high degree of organization and the ability to make use of each machine and each hour of good weather.

7. By the end of April, the sowing campaign had fallen behind; only about 26 million hectares of grain had been planted, compared with 31 million in 1972 and 39 million in 1973 for the same period. Conditions improved in May, and the sowing rate accelerated. By 30 May, state and collective farms had planted 85 million hectares of spring grains² – about 95% of last year's level and almost the same as in 1972, as shown in the following tabulation:

	Million Hectares				
	15 Apr	30 Apr	15 May	30 May	Final
1972	10	31	54	86	89.5
1973	13	39	64	90	95.9
1974	13	26	54	85	91 (est.)

8. In early June the sowing was practically at an end; 91.0 million hectares of spring grains (excluding corn) had been planted by state and collective farms, according to Ministry of Agriculture reporting. Some of the seedlings perished, however, after emerging in late May when temperatures plunged to freezing and below in European Russia and the Ukraine. As in the case of frost-damaged winter grains, much of this acreage may be re-sown with lower yielding catch crops, such as millet and buckwheat.

Total Grain Area Available for Harvest

9. We estimate that 94 million to 99 million hectares of spring planted grains will survive.³ With 26 million hectares of winter grains, the USSR will have

2. Excluding corn; state and collective farms only.

3. Including 4-1/2 million hectares of corn. Also including private holdings and other state enterprises as well as the 91 million hectares indicated above for state and collective farm acreage.

a total of 120 million to 125 million hectares of grain area this year – about average for recent times but well below last year (see the table). Because of the diminished winter grain area and an unusually low planting of spring wheat, bread grain sowings will be almost 10 million hectares less than the 1966-71 average but about the same as in 1972-73.

USSR: Grain Area as of 1 June

	Million Hectares				
	Annual Average 1966-70	1971	1972	1973	Estimated 1974
Total	122.1	117.9	120.2	126.7	120-125
Bread grains	78.7	73.5	66.7	70.1	66
Winter wheat	18.3	20.7	15.0	18.3	18
Winter rye	11.5	9.5	8.2	7.0	7
Spring wheat	48.9	43.3	43.5	44.8	41
Other	43.4	44.4	53.5	56.6	54-59

10. The losses in winter wheat and rye were not made up by additional sowings of spring wheat, because the areas involved generally are not suitable for spring wheat. This structural change is not necessarily a problem. Soviet farm experts have argued for some time that barley would yield more than spring wheat in a number of regions and that under "normal conditions" there would be adequate production of bread grains to cover domestic needs and export commitments. But there is an element of risk: the greater reliance on feed grains erodes some of the cushion against a year in which bread grain quantity and/or quality falls off badly.

Outlook for Production

Winter Grains

	Millimeters	
11. Winter grains depend heavily on the soil moisture that has accumulated over the winter. In this respect, 1974 is somewhat below average. Cumulative precipitation from last October through May of this year was below last year and below the average for 1963-74, ⁴ as shown in the tabulation.	Annual average	
	1963-73	337
	1971-72	289
	1972-73	355
	1973-74	324

12. In spite of below-average rainfall to date, winter wheat yields probably will be above the average of the past decade, reflecting mainly increasing fertilizer

4. Precipitation in the winter grain areas is weighted by the importance of these areas in total production of winter grains.

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application and use of improved seeds. The projected average winter wheat yield based on rainfall and average temperatures through May is 23-1/2 centners per hectare, second only to the 26.9 centners per hectare reported for 1973.⁵ This projection, however, does not take into account certain unfavorable conditions, the effect of which is not known. These are:

- Spotty germination last fall, which produced stands of below-normal density.
- The damage caused by alternate thaws and freezing.
- The effects of the spring frosts.

If they prove to be severe, these conditions could depress winter wheat yields considerably but probably not to below the average of the preceding 10 years - 20 centners per hectare. Moreover, harvesting of winter grains normally does not begin in volume before early July, and growing conditions in June will have a decided impact on yields.

Spring Grains

13. The outlook for spring grains on the whole is bearish at this stage. Delays in spring seeding will undoubtedly reduce yields, which, in many areas, drop substantially when sowing is delayed beyond an optimal 10- to 15-day period. In addition, large areas of spring plantings did not emerge and had to be reseeded hastily with low-yielding millet and buckwheat. Although much of the New Lands (in Siberia and Kazakhstan) received badly needed rains in May, soil moisture is probably below normal in some regions.

14. Growing conditions so far and normal weather during the remainder of the growing season would lead to spring grain yields below the average of the past 10 years. A repetition of last year's extremely high yield of 16 centners per hectare is particularly unlikely. It is important to remember, however, that weather conditions in June and July have the greatest effect on spring grain yields.

Centners per Hectare

1964	11.5
1965	8.0
1966	12.9
1967	11.1
1968	13.4
1969	12.5
1970	14.5
1971	13.8
1972	13.3
1973	16.0

Preliminary Harvest Forecast

15. A preliminary forecast based on rainfall and average temperatures through May puts the average yield for all grain at 15.4

Annual average	
1964-73	12.7

5. There is a strong time trend in the weather-yield regressions for winter wheat in most crop districts. This spring, Soviet farms were urged to fertilize fields as heavily as possible to overcome the poor start winter grains got last fall.

centners per hectare⁶ – or a crop of 185 million to 192 million tons with a grain area of 120 million to 125 million hectares. Based on past experience with the relation between yields and weather through May, the range of uncertainty is still large. In fact, there is one chance in six at this stage that the gross harvest (on 125 million hectares) could be more than 202-1/2 million tons and one chance in six that it could be less than 181-1/2 million tons.

16. Since the projected yields (and harvest) implicitly assume that effects of frost and winterkill in fields that are not reseeded are only average, the projections probably are somewhat high. This is not an average year in these respects. Moreover, there is still not enough information on the extent of the delays in sowing in terms of time and region. The regression forecast model assumes average success in meeting planting schedules, so the forecast is high on this account as well.

Prospects for Grain Imports

17. The extent and timing of Soviet grain purchases for fiscal year 1975 will depend not only on the size of the harvest – and the leadership's perception of import needs – but also on developments in the world grain market. Beginning in July, when the harvest is well under way, the Soviet leadership will continually assess the prospects for the grain crop. At the same time, the leadership will have a watchful eye on the grain crops in major exporting countries, particularly the United States.

18. The Soviets will base their import requirements on:

- The adequacy of the grain crop for both domestic requirements and deliveries to client states;
- The quality of the bread grain crop;
- The size and structure of grain reserves; and
- Political considerations relative to requests from Third World countries.

19. We estimate domestic requirements and export commitments to be from 196 million to 206 million tons⁷; our projected Soviet harvest of 190 million tons,

6. Last year at this time the same weather-yield model (see the Appendix) projected an average yield of 15.3 centners per hectare. As the crop season progressed, conditions improved – pushing up the forecast yields. By the end of August the forecast yield had increased to 16.7 centners per hectare. The officially reported average yield was 17.6 centners per hectare. The difference between yields of 15.3 and 17.6 centners per hectare, when applied to the Soviet grain area, equals some 30 million tons of grain.

7. The quantity of grain used for livestock feed in 1973 and needed for 1974 is unknown. The lower end of the range assumes that grain feeding levels increased at the same rate as herds; the higher end assumes a substantial growth in the grain feeding rate. Higher slaughter weights of cattle, increased yields of milk, and the marked growth in poultry numbers registered in the first four months of 1974 suggest that the quantity of grain fed increased faster than the size of herds.

therefore, would result in a shortfall of 6 million to 16 million tons. Sufficient grain reserves probably are available to cover such a shortfall, as 15 million to 25 million tons were added to stocks following the record 1973 harvest. In any event, there should be no need to import large quantities of grain during fiscal year 1975.

20. Nevertheless, some grain may be imported if only to correct imbalances in domestic production, since the quality of a large share of the wheat stocks may be below milling standards and the share of bread grains in the 1974 acreage is smaller than usual. Moreover, if world grain prices are right, the Soviets might buy to avoid stock drawdowns and to maintain some flexibility in meeting requests for grain from Third World countries such as India. They have a particular incentive this year because of an expected large surplus in the Soviet hard currency balance of payments for 1974. Since the Soviets fear devaluations, they may be tempted, if prices trend lower, to reduce these hard currency reserves by way of sizable grain purchases.

APPENDIX

DERIVATION OF HARVEST PREDICTION FOR 1974

The predicted grain harvest for 1974 is based on a linear regression model which estimates the influence of weather and a time trend on grain yields in each of 27 crop regions in the period 1961-72 and uses the results to forecast a yield for each region in 1974. The weather variables used in this analysis include cumulative precipitation from October through March and monthly precipitation and average monthly temperatures for April and May. For those regions in which no statistically significant relationship between time and grain yields can be determined, the model considers only the influence of the weather variables in forecasting yields for 1974. For six additional regions, forecast yields are derived from time trends alone because weather data are not available.

The forecast yields for all 33 regions are then multiplied by estimates of the 1974 harvest area to obtain the predicted harvest. Because the model does not account for all the variation in yields (e.g., weather in June through September as well as variations resulting from changes in fertilizer usage and sowing and harvesting techniques), there is still a good deal of uncertainty in the forecast of total production.